

CREATING MICRO-VIDEOS TO DEMONSTRATE TECHNOLOGY LEARNING

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ABSTRACT

Short videos, also known as micro-videos, have emerged as a platform for sharing ideas, experiences, and life events on online social networks. This paper shares preliminary results of a study involving students from two universities who created six-second videos using the Vine mobile app to explain or illustrate technology concepts. An analysis of their videos shows that the six-second constraint often inspires creativity and critical thinking, as students need to carefully consider the message they wish to convey, and how they can do so effectively in a compelling micro-video. The creation of such videos provides a way to demonstrate student learning.

KEYWORDS

Micro-Videos, Vine, Creativity, Digital Story Telling

1. INTRODUCTION

Micro-videos, or short-length videos, have become a popular form of creative expression in online social networks and digital media sharing sites. The wide availability of mobile devices and the ability to record and share short videos on platforms such as Vine and Instagram have encouraged a new genre of multimedia communication where videos lasting for matter of seconds convey powerful messages.

One of the most popular websites for hosting and apps for creating micro-videos is Vine, a sharing platform owned by Twitter, acquired in October, 2012. Vine launched on January 24, 2013 as an app for iOS mobile devices, and an Android version followed shortly afterward. With the Vine app, users create short videos ("vines") by tapping on a mobile device's screen to record video content for a short duration. They may stop and start recording, capturing one or several scenes to compose a six-second video.

Vine's video player plays each vine repeatedly; a characteristic of vines (and a measure of their popularity) is the number of loops which viewers watched them. Repeated playing of micro-videos can be compelling, as was the case with one of the first viral Vine videos created from news footage of the Boston Marathon bombing in 2013 (Lorman, 2013). It since has reached over 645,000 loops.

1.1 Creativity in Micro-Videos

From its very beginning, Vine was intended to encourage creativity. Just as Twitter has a limit of 140 characters on Tweets, Vine founder Dom Hoffman said in an inaugural post on the Vine blog, the six-second "constraint inspires creativity" (Hofmann, 2013) when developing videos that will resonate with their audience.

Poulaki (2015) distinguishes between looping background videos, such as waves crashing in the ocean or logs burning in a fireplace, and looping foreground videos, which communicate thoughts and feelings. The former have "less creative potential" than looping foreground videos, which often "reproduce a gesture or incident, an event. They often contain a distinctive action, or a curious object and its transformation." (Poulaki, 2015, p. 93).

Redi. et al (2014) developed criteria used to analyze over 3800 Vine videos to ascertain the level of creativity they demonstrate. They define a video as creative if it presents ideas in a novel and unexpected way, and that it has aesthetic value. A creative video is "unique in a significant way, or it expresses ideas in an unexpected or surprising manner." (Redi, O'Hare, Schifanella, Trevisiol, & Jaimes, 2014, p. 4273).

1.2 Vine Usage

The Pew Research Center for Internet, Science, and Technology reports that 24% of American teens between ages 13 and 17 use the Vine app on their mobile devices as a social media platform. (Lenhart, 2015). Of its 200 million monthly users, 71% are millennials. (Lella, 2015)

Yarosh studied the types of videos created by youths and adults, and found that youth see online video as a stage to capture their own performances rather than archiving memories. (Yarosh, Bonsignore, McRoberts, & Peyton, 2016) Vine is a "playground for teenagers" (Yarosh, Bonsignore, McRoberts, & Peyton, 2016, p. 1434) that offers a platform for creative expression.

For undergraduate college students, video sharing services like YouTube, and micro-video blogging services like Vine are among the tools that promote "user generated content, sharing, and social commentary, which have been found to encourage student expression and participation, as well as foster social learning theory." (Buzzetto-More, 2014)

Given this acceptance of micro-videos by millennial students and the creativity that many micro-videos display, higher education institutions have begun including Vine, Instagram, and similar platforms in their marketing and outreach to college students via social media. In addition, some creative educators are beginning to incorporate micro-videos in the classroom, as the next section describes.

2. MICRO-VIDEOS IN AN EDUCATIONAL CONTEXT

Secondary and tertiary institutions have begun to make use of micro-videos in educational contexts as a means for students to express their own creativity and mastery of subject matter. At a high school in Pennsylvania, in the United States, Hilton and Oldakowski (2015) studied the vines of students in a literature class that demonstrated their understanding of Aldous Huxley's *Brave New World*. They found that students, through the use of social media, increased their engagement and understanding of the text. Over the course of reading the book, students created six video interpretations its themes at regular intervals. The investigators noticed progression from earlier vines to later ones, and saw that the more meaningful vines contained several quick scenes rather than one longer recording.

Mozdzer Gil (2014) describes how journalism students create micro-videos with Vine or Instagram to engage their audiences in digital stories. "The demand for short videos creates a challenge for journalists to be efficient with images, words, and their audience's time." Students "dissect, evaluate and emulate good video blurbs" (Mozdzer Gil, 2014, p. 1) from micro-video sharing platforms before they embark on creating their own videos.

Students at Babson University integrate social media tools into their marketing courses to learn how to present products effectively. (Bal, Grwal, Mills, & Ottly, 2015) They create a Facebook page for a company, and then use a social media photo or video sharing service such as Instagram or Vine to enhance the company's online presence, and demonstrate their understanding of social media marketing and analytics.

The process of creating vines may improve learning outcomes by engaging students with digital and social media (Bal, Grwal, Mills, & Ottly, 2015), and help them develop digital literacy skills. "To become digitally literate means a disruption of traditionally passive notions of the use of texts and textbooks for understanding, and moving toward a more active approach in which digital classroom texts and technology are used to provide new opportunities for understanding, exploration and engagement." (Hilton & Oldakowski, 2015, p. 935) "The active engagement and critical thinking skills encouraged by multimodal activities can have substantive benefits for students. To begin, activities focused on the application of digital literacy require greater cognitive effort on behalf of students, who must simultaneously learn both the content and the digital medium" (Hilton & Oldakowski, 2015, p. 936)

This study extends the use of Vine in education, by having students produce micro-videos using Vine to illustrate or explain technology concepts. As with the examples cited, students must create an engaging presentation that is succinct in its message. The study considers the following guiding questions:

- Does the process of creating micro-videos encourage creativity?
- Does the process of creating micro-videos demonstrate student learning about a topic?

3. METHODS

Students from an American university and a Romanian university participated in this exercise as members of international teams in a collaborative project called TalkTech. (Andone & Frydenberg, 2014) The project matches first year business students in IT 101, an introduction to technology concepts course at Bentley University, a business university in the United States, and Bachelor in Telecommunications engineering students in the Technologies of Multimedia (TMM) course in their final year at Politehnica University Timisoara in Romania. 34 American and 41 Romanian students participated in the TalkTech 2015 project. All of the students who participated spoke English with fluency. The American students were all an average of 19 years of age; the Romanian students were about 4 years older than American partners.

Both IT 101 and TMM teach students basic digital literacy skills, including creating and posting videos, making personal web pages, interacting with social networking sites, and using a search engine as a research tool. Students also learn to develop new media and use Internet technologies for communication and collaboration. The TalkTech project give students the opportunity to develop and demonstrate their skills in these areas, as they must become facile with creating, consuming, posting, and embedding multimedia, using the web as a research tool, and communicating online using appropriate tools.

Students formed groups of three or four by selecting a topic shown in Table 1.

Table 1. TechTalk 2015 Topics

TalkTech 2015 Topics	
1.	How is augmented reality being used in various businesses or industries?
2.	How does social media influence customer experiences?
3.	What are the most popular messaging apps, and who uses them?
4.	What are the biggest cybersecurity threats facing Internet users today?
5.	How does streaming audio and video impact the entertainment industry?
6.	How do mobile technologies and the Internet enable new business models through crowd sourcing?
7.	Are MOOCs threatening the future or value of a traditional university education?
8.	Are wearable devices a fad, or the future direction for staying healthy?
9.	Should you license your photos using Creative Commons on media sharing sites?
10.	Does information privacy matter in the age of big and open data?
11.	When it comes to the Internet of Things, are we there yet? If not, what is possible in the future?
12.	How smart are Virtual Personal Assistant apps such as Siri and Cortana?
13.	What factors are most important in increasing the adoption of mobile payment technologies?
14.	How do personal live streaming video apps change the way information is shared over the Internet?
15.	What features do open-source mapping apps have over Google or Bing Maps?

Each group worked together for a period of six weeks to research the topic, and share their findings by preparing a variety of multimedia artifacts. Among the artifacts required, each student needed to prepare a micro-video to illustrate some aspect of the topics, and group members could discuss their ideas for the videos with each other. The assignment given was for each person to create his or her own original Vine video to present some aspect of the topic. The instructors provided no further qualifications or requirements for their videos. The instructors demonstrated Vine in class, and asked their students to install the app if they had compatible mobile devices, but did not provide any further instruction on how to use it. When some students (mostly Romanian) were not able to use Vine, the instructors added the option of creating a micro-video on YouTube as an alternative. The YouTube videos were generally one or two seconds longer than the Vine videos because of no enforced time constraint, and they did not play in a loop, as Vine does.

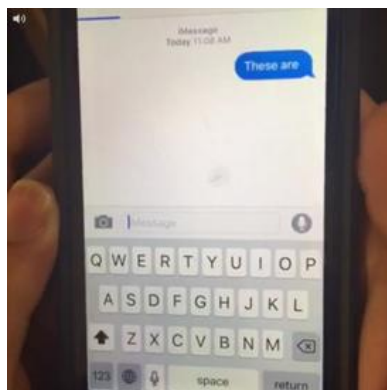
68 of the 75 participants successfully created micro-videos as part of this project. 21 of the Romanian students used YouTube rather than Vine to create and share their videos, mostly because they did not have a smartphone that could run the Vine app. Three students removed their videos at the end of the semester, so

they were not considered in this study. After reviewing the 68 videos, and based on concepts of video creativity in (Redi, O'Hare, Schifanella, Trevisiol, & Jaimes, 2014) and (Poulaki, 2015), the authors identified broad categories into which each video falls: definition, demonstration, skit, slide show, or removed (for those videos which were created during the semester and removed immediately afterward.) Table 2 summarizes each category and the number of vines created in each as part of TalkTech 2015.

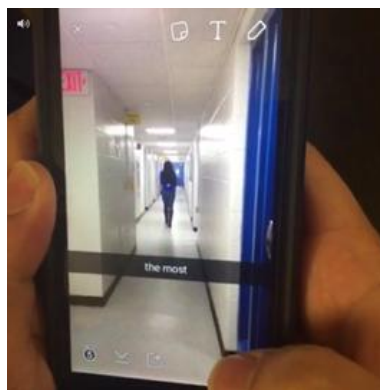
Table 2. Categorizing educational micro-videos

Category	Description	Number of Videos
Definition	The video contains a student reading a definition	14
Skit	The video contains a skit where student(s) act out some aspect of the concept	16
Demonstration	The video contains screenshots or some other demonstration of the concept, with voice-over narrative	29
Slide Show	The video contains an animation or a slide show showing series of words or images in succession to describe the concept	6
Removed	Students removed their videos after the semester ended	3

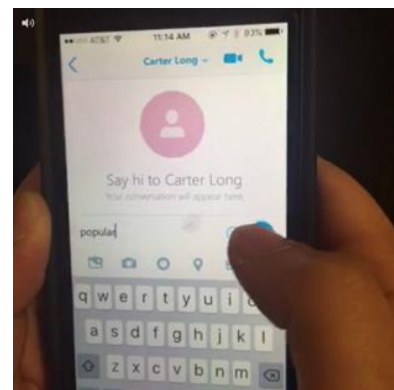
Demonstration videos were clearly the most popular among this cohort, and in many cases required the greatest amount of technical expertise in order to complete. In this small sample, 51 of the 65 videos created, or 78% demonstrated creativity beyond simply reading a definition into the camera. As an example of a creative Demonstration video, consider the five-frame Vine video described in Figure 1 that one student created to explain the concept of popular messaging apps. (Karpowicz, 2015) This vine shows screenshots of five different messaging apps, one in each frame. Each app displays part of the sentence "These are the most popular messaging apps!" The sentence appears one or two words at a time as a message on one of five popular messaging apps. Upbeat music plays throughout in the background.



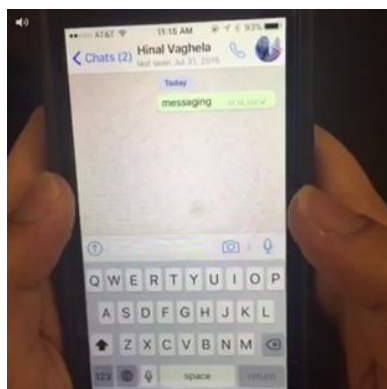
1. iMessage



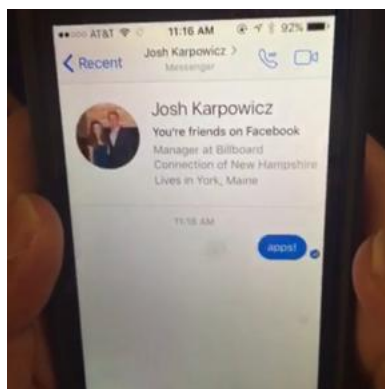
2. SnapChat



3. Skype



4. WhatsApp



5. Facebook Messenger

Figure 1. Screenshots of five messaging apps make up a Vine on messaging apps

Skit videos were the second most popular type of Vine videos created among this cohort, and demonstrated creativity in capturing the essence of the topic. As an example, a five-scene micro-video about MOOCs shows (a) a student discarding her textbooks and (b) packing them away; (c) opening her laptop, (d) searching for online courses, and (e) visiting the Coursera website. These five scenes convey basic information and understanding about the topic.

Most of the skits and demonstrations met the requirements for creativity by Redi et. al (2014) as students set up specific scenarios to illustrate their assigned technology trends and concepts in unexpected ways. In order to create the messaging apps demonstration video shown in Figure 1 above, the student had to research the most popular messaging apps, install each one on his mobile device, become proficient at using them, ask someone to help record the video, and upload it online. Illustrating the concept of messaging apps by demonstrating five messaging apps to form a message one word at a time is a novel and unexpected approach, and seeing all of them in rapid succession in the video adds an aesthetic value to the viewing experience. To create the MOOCs skit, students needed to understand what MOOCs are, name a MOOC provider, and convey the motivation for taking a class online, all in six seconds.

The number of scenes in a micro-video often hinted at its complexity and the number of different ideas that the students are trying to convey. Most videos only had one or two scenes. The messaging app and MOOCs micro-videos described previously has five scenes; that is, recording started and stopped five times when creating each video. Figure 2 notes the frequency of the number of scenes in each of the 65 videos considered in this study.

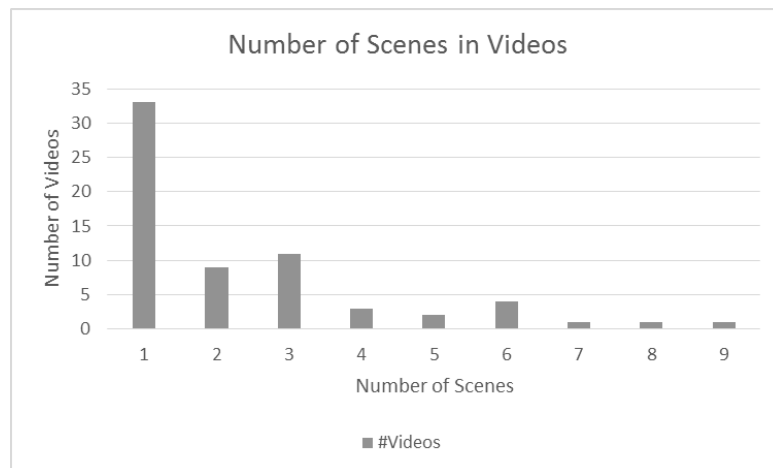


Figure 2. Number of scenes in TechTalk 2015 micro-videos

It is worthwhile to note that videos with more than six scenes were created using additional software, rather than simply tapping on the Vine app running on a smartphone screen for a second at a time to record one scene before setting up the next.

All 14 of the student-created micro-videos that fell into the Definition category had one scene containing the student reading or reciting a definition while looking in the camera, as if taking a video selfie. While the majority of the micro-videos had one, two, or three scenes, several videos had more than six scenes. Two groups used mobile apps such as Flipagram, to create micro-videos from their photos and videos, and set them to music.

4. ANALYSIS

This study implemented several evaluation methods. The authors relied on interviews and team blogs during the project to understand the student experience better, and to learn how students interacted with each other in their teams. Students voluntarily completed an anonymous online questionnaire based on the ZEF method (Selkava, Ronkainen, & Alasaarala, 2011) at the conclusion of the project.

Students involved in this project have significant previous experience using a variety of digital and social media tools, although most had not used Vine regularly before this project, as shown in Figure 3.

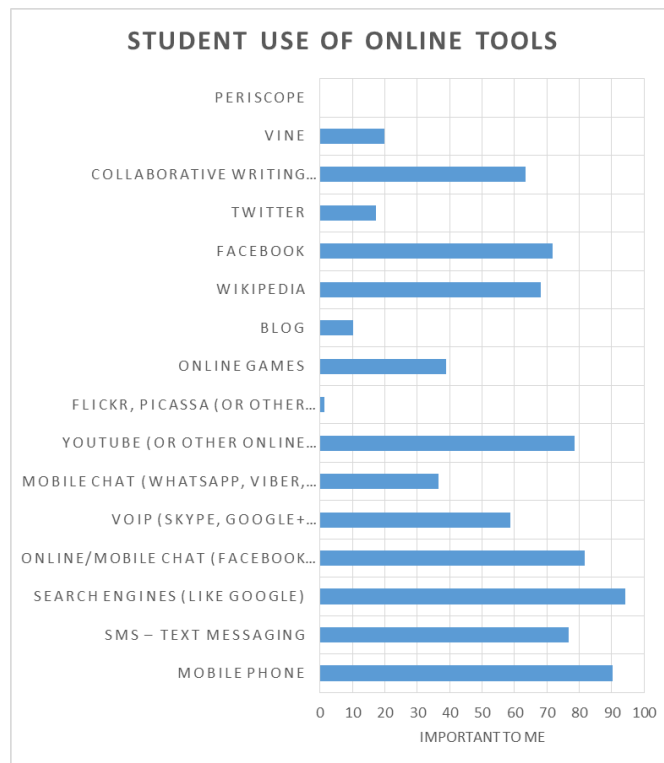


Figure 3. Student use of Online and Social Media Tools

Groups met using live communication (Skype, Google Hangouts, etc.) to talk about various approaches and tools for making their Vine videos. In an open-ended question at the end of the project, five of the students said that "making the Vine" was the part of the project that they enjoyed the most. One student shared with her group on their blog, "I used Flipagram to create a picture slideshow, and then uploaded it to Vine." Said another, "I made it in (Adobe) Premier and recorded myself as doing some buying over the Internet, and then got hacked."

When asked the extent to which they agree with the statement, "Using Vine, I was able to express a complex topic in a simple way" the mean answer was 45.9% answer, with a distribution of responses as shown in Figure 4:



Figure 4. Using Vine, I was able to express a complex topic in a simple way

This median score suggests that it may have been difficult for many students to express a complex topic in a micro-video. Some students found the open-ended nature of this assignment to contribute to the challenge of completing it, remarking that they weren't sure how much information they "were supposed to" convey in their videos. In future iterations of this project, the instructors may suggest that students create a story board for their videos, requiring them to more formally list the scenes and concepts they wish to include in their videos. In some cases, the simplest appearing videos were the most complex to create. For example,

in one demonstration of the Internet of Things, students set up a scenario where a smartphone controlled a sensor on another object. The behind the scenes work of preparing this demonstration showed student understanding of the topic, and made for an engaging video to the viewer because of its simplicity.

When asked which tools allowed them to be most creative, 72% listed Vine as at tool that allowed them to be creative, as shown in Figure 5.

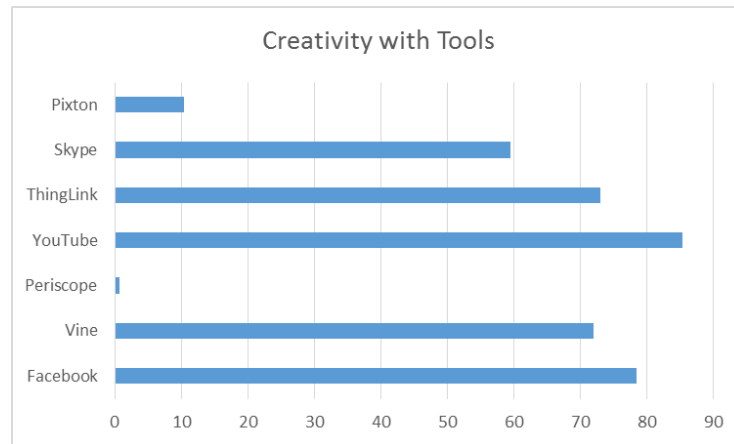


Figure 5. Creativity with Online Tools

The time constraint contributed to the need to be creative. As for Vine's six-second limit, many students agreed with the sentiments that "You have to think hard about what you're going to say and how you can say it in six seconds."

The project showed that micro-videos provide a creative way for students to share their cursory knowledge of a topic in six seconds. Students found that it is difficult, if not impossible, for a six-second video to convey much depth about a particular topic, but they were able to convey the essence of their topics effectively in this short timeframe.

5. CONCLUSION

The TalkTech 2015 project introduced the task of creating micro-videos to illustrate technology concepts as one of several multimedia deliverables. A future study could examine the motivation and process students used to create Vine videos, and approaches to conveying the essence of a complex topic in a micro-video. Although some students were familiar with Vine, for many, the task of creating micro-videos was new, and for all, the challenge of capturing and conveying the essence of a technology concept in six seconds proved to be a challenging exercise in critical thinking and planning. While some students simply read a definition of their topic, the majority chose to present their understanding of an aspect of their topic in ways that were innovative and creative.

As tools and social media platforms may change frequently, this exercise exposed students to new ways to express themselves and think creatively. The use of micro-videos in the classroom can extend to many disciplines, and further projects might involve students critiquing each other's videos, or having groups of students create micro-videos, that when viewed together, present a mini-series about the topic. The task of creating micro-videos proved to be engaging, encouraged creativity, and provided a new way for students to demonstrate what they learned about current technology trends and developments.

REFERENCES

- Andone, D., & Frydenberg, M. (2014). Becoming Creative Creators: Simulating a Global Workplace using Computational Thinking Practices. *Proceedings of Ed-Media World Conference on Educational Media and Technology, 1*, pp. 564-571. Tampere.
- Bal, A. S., Grwal, D., Mills, A., & Ottly, G. (2015). Engaging Students with Social Media. *Journal of Marketing Education, 1*-14.
- Buzzetto-More, N. A. (2014). An Examination of Undergraduate Student's Perceptions and Predilections of the Use of YouTube in the Teaching and Learning Process. *Interdisciplinary Journal of E-Learning and Learning Objects, 10*, 17-32. Retrieved from <http://www.ijello.org/Volume10/IJELLOv10p017-032Buzzetto0437.pdf>
- Hilton, J., & Oldakowski, T. (2015). Brave New World: The Use of Popular Social Media for Multimodal Literary Analysis. *Proceedings of EdMedia 2015*, (pp. 935-943). Montreal.
- Hofmann, D. (2013, January 24). *Introducing Vine*. Retrieved from Vine Blog: <http://blog.vine.co/post/55514427556/introducing-vine>
- Karpowicz, J. (2015, December 2). *Messaging Apps Vine*. Retrieved from Vine: <https://vine.co/v/iWnHjT0UQaQ>
- Lella, A. (2015). *The 2015 U.S. Mobile App Report*. comScore. Retrieved February 21, 2015, from <http://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/The-2015-US-Mobile-App-Report>
- Lenhart, A. (2015, April 9). *Teens, Social Media, and Technology Overview 2015*. Retrieved from Pew Research Center Internet Science, and Tech: http://www.pewinternet.org/files/2015/04/PI_TeensandTech_Update2015_0409151.pdf
- Lorman, D. (2013, April 15). *Boston Marathon explosion from the news*. Retrieved from Twitter: <https://twitter.com/Doug3P0/status/323878851803496448>
- Mozdzer Gil, J. (2014, Fall). Using Short-Form Video in the Multimedia Journalism Classroom. *Teaching Journalism & Mass Communication, 4*(2), 1-5.
- Poulaki, M. (2015). Featuring shortness in online loop cultures. *Empedocles: European Journal for the Philosophy of Communication, 5*(1+2), 91-96.
- Redi, M., O'Hare, N., Schifanella, R., Trevisiol, J. M., & Jaimes, J. (2014). 6 Seconds of Sound and Vision: Creativity in Micro-Videos. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition* (pp. 4272-4279). IEEE.
- Selkava, A., Ronkainen, S., & Alasaaraela, E. (2011, April). Features of the Z-scoring method in graphical two-dimensional web surveys: the case of ZEF. *Quality & Quantity, 45*(3), 609-621.
- Yarosh, S., Bonsignore, E., McRoberts, S., & Peyton, T. (2016). YouthTube: Youth Video Authorship on YouTube and Vine. *Proceedings of CSCW '16* (pp. 1423-1437). San Francisco: Association for Computing Machinery.